

Considerations in Defining an Environmental Water Account
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This draft document was written by David Fullerton, based upon comments made by the DNCT, but has not been reviewed or approved by the DNCT.

WHAT ARE THE ADVANTAGES OF AN ENVIRONMENTAL WATER ACCOUNT?

- o Good for circumstances when the need for export reductions cannot be well defined in advance. For example, the timing of the appearance of fish in the vicinity of the pumps cannot be predicted in advance.
- o Good for areas where the relationship between exports and environmental health is not well defined. With an environmental water account (EWA), the timing of export reductions can be readjusted as scientific understanding improves.
- o Good for Adaptive Management experimentation. The ability to vary the export regime will allow for easier experimentation on the effects of exports and better understanding of the relationship between exports and biology.
- o Creates incentives for both the eco manager(s) and the water projects to support good science and to pursue infrastructure/efficiency projects.

WHAT IS THE ROLE OF DEFAULT OPERATIONAL RULES?

"Default" or "prescriptive" rules are the foundation of the EWA approach. Without default rules as a reference point, it will be impossible to define environmental credits and debts.

Default operational rules should be set in order to satisfy the following goals:

- o Baseline ecosystem protection (i.e., to deal with the non entrainment effects of the export facilities).
- o Entrainment protection, where the needs are (1) highly predictable, based upon hydrological factors and (2) high priority.

WHAT IS AN ENVIRONMENTAL WATER ACCOUNT?

An (EWA) is compatible with any set of default rules. The default rules constrain what can happen in the absence of any discretionary action by the eco manager(s). The environmental water account is associated with movement away from the default operations -- either in the direction of more pumping or less pumping. Thus, USFWS's scenario A1 could define a default operational regime, then an EWA could be used to shift pumping up and down from this baseline. Similarly, existing standards could represent default operations.

WHAT ARE ENVIRONMENTAL CREDITS?

In the simplest formulation, environmental credits represent environmental rights to: (1) actual water south of the Delta or (2) reduced demand for water south of the Delta. These rights are traded with the state and federal projects in exchange for reduced pumping when reduced pumping is beneficial to the environment.

Thus, the environment might either control water in San Luis Reservoir or in groundwater storage. The environment might have an option contract to purchase water from south of Delta agriculture. Or, the environment might pay for a reclamation project and get credits by trading its reclaimed water for someone's Delta water exports.

HOW ARE CREDITS ACQUIRED?

Credits are acquired either through purchase (e.g., the environment pays for water transfers or efficiency) or through direct diversion of water from the Delta.

The environment gains credit for diversions from the Delta in two ways:

- o The eco manager(s) may allow exports to rise above the default operational regime described above.
- o The eco manager(s) may receive a share of the water derived from new actions that allow greater exports from the Delta. For example, there are proposals to (1) allow joint state/federal use of the export pumps and (2) more frequent use of the full pumping capacity of the SWP. The environment would gain credits whenever the joint point of diversion is used or whenever the full capacity of the SWP export pumps is used.

HOW AND WHERE ARE CREDITS HELD?

Credits are either held in storage south of the Delta or come from water purchase contracts. The ability of the eco manager to provide ecosystem benefits using an EWA is strongly dependant upon the ability of the manager to gain access to high priority storage rights, or its ability to acquire large volumes of water through option contracts with agriculture.

What storage is available? San Luis Reservoir storage is available at least part of most years. Moreover, in years when San Luis does not fill, environmental storage could be held through the winter and into the spring. However, unless the environment is given the right to carryover storage in San Luis Reservoir, San Luis storage does not represent a satisfactory way to hold environmental credits. MWD may be able to provide high priority storage for a period of several years. Moreover, large amounts of groundwater storage appear to be available within a matter of years south of the Delta. The eco

manager(s) would be granted or would purchases storage rights in the these facilities.

To the extent that storage is not reliable or is not filled with water, the environment can purchase credits in a water market. This may imply that a short term strategy would be to purchase water options south of the Delta, then to rely increasingly on storage as new storage is brought on line in the future.

HOW WOULD CREDITS BE USED TO AFFECT OPERATIONS?

Credits would be treated as property and could either be (1) directly transferred to the State and Federal Projects in exchange for reduced pumping or (2) treated as collateral for a water loan by the Projects. For example, if the environment wants to reduce pumping in June by 5,000 cfs, it could transfer 10,000 acre-feet of water per day from storage in the San Luis Reservoir to the SWP to effect the reduction. The water users are not affected in any way. The use of rights as collateral is more complicated. Suppose that the eco manager wanted to reduce export pumping in October. In October, it is too early to say whether or not the export reduction will actually affect total deliveries by the Projects. Therefore, the eco manager would place the necessary amounts of water option contracts or south of Delta storage in an escrow account. The account would then be called upon only to the extent necessary to make the state and federal projects whole over the upcoming water year.

HOW WOULD WATER USER INTERESTS BE PROTECTED?

The water user supplies will be defined by (1) the default operational rules and (2) the share of the benefits given to water users from new and existing facilities and actions. For example, water users might get half of all new storage space. They might receive half of all new water pumping generated using the joint point of diversion and the full capacity of the Banks Pumping Plant. The EWA might include some access to San Luis Reservoir. CALFED might purchase water or develop new water through efficiency in order to boost water user supplies. In any case, whatever distribution of rights and property is negotiated will define water user supplies. Thereafter, the use of the EWA should not have a negative impact on supplies and may increase supplies. Indeed, a fundamental principle of the EWA should probably be that use of the EWA will not harm water users. This principle has major implications for the design of the EWA. For example, it would limit the ability of the EWA to carry "debt" into a future year if that debt caused water shortages in the current year.

HOW CAN ENVIRONMENTAL RISKS BE MINIMIZED?

If environmental protection is predicated on access to environmental credits, then the environment must have assured access to enough credits to meet projected needs. Access

to environmental credits can be assured in several ways:

- o High priority water in storage.
- o Water purchase contracts south of the Delta.
- o Constant supplies of credits from water efficiency or reclamation projects

In the long-term, all of these options can be implemented to the degree required. In the short-term, the environment will need access to storage in existing storage facilities, or water purchase contracts or both to provide assurances that credits will be available from the beginning.

WHAT IS NEGOTIABLE?

Nearly everything is negotiable. That is what makes this problem so complex. The following is partial list of negotiable items.

1. The default operational rules. These are the rules that define water user supplies and provide the basis for generating and using credits.
2. How the benefits of future increases in export capacity and storage will be shared.
3. How the water generated by pumping above the default operational rules will be shared.
4. The priority which environmental conveyance and storage is given within existing facilities.
5. Who makes the decisions about when to deviate from the default operational rules.
6. The degree of regulatory certainty associated with the operational regime.
7. Who pays how much for new facilities, access to storage, transfers, and efficiency.

On the good side, the many negotiable items provide a great amount of flexibility to negotiators to develop a package that meets the requirements of different interests.

For example, if the environment requires more stringent operational rules, then a large portion of the benefits of new facilities would need to be credited to the water users, and perhaps water purchases and efficiency would need to be funded by CALFED and turned over to the water users as well.

If the water users wish to have greater average exports, they may be asked to provide higher priority storage for the environment within San Luis Reservoir.

UPSTREAM INTERACTIONS

The discussion thus far has focussed on export operations and has assumed that all credits are (1) held south of the Delta and (2) used to modify export operations. This is probably

too limited a perspective for several reasons:

- o Changes in Delta project operations will have upstream implications. For example, if the eco manager(s) call for export reductions during the spring, then the export projects may reduce their releases from Shasta or Oroville Reservoirs, thus building up storage within these reservoirs. This water might be released later in the summer for delivery to the exporters. Under such circumstances, the water cost to the export projects would be reduced by the amount of stored water that could be moved through the Delta. Similarly, if exports are increased in order to build up environmental credits and this causes increased releases from Shasta and Oroville, then storage levels in these reservoirs will drop. Those drops may or may not have supply impacts, depending upon how wet the next winter is. This implies a need for a crediting system that accounts for upstream storage levels. The DNCT has yet to work out how to integrate these interactions into the EWA. Some have argued that two separate credit systems will be needed: one for changes in upstream storage, another for changes in export pumping. Other argue that the upstream storage and exports can be integrated into a single account.
- o Other standards than just exports might also be modified under an accounting system. For example, the ag/urban group has suggested that the eco manager(s) might be granted to right to allow variances to the X2 standard, with all water saved going to the environment. Similarly, upstream environmental water storage credits might be used by the environment to enhance Delta outflow, should the eco manager(s) determine that the benefits of increased outflow are worth the water cost.